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ABSTRACT

This study examines what is known about the changing impact of both federal and states' direct, need-based, student financial grant aid policies. The author then develops recommendations for further research to evaluate the effectiveness of specific state policies to compensate for a reduced Federal role in support of higher education access, especially for students in or near poverty. Critical terms used in grant aid decisions are defined, and a literature review of the subject is presented, including college choice factors and enrollment patterns, that reveals that very little assessment of the impact of these policy changes has been done. (Contains approximately 60 references.) (Author/NAV)

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Direct, Need-Based, Student Financial Grant Aid Policy on Enrollment Trends at Institutions of Higher Education: The Prospect for Determining the Effect of State Policy

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Abstract

Can state-level, direct, need-based, student financial grant aid policies affect enrollment patterns at institutions of higher education within a state? This question has taken on increased relevance in an era marked by a receding federal commitment to a student grant-based aid policy to promote equity in access for its citizens to postsecondary education. The author reviews what is known about the changing impact of both federal and states' direct, need-based, student financial grant aid policies. He then develops recommendations for further research to evaluate the effectiveness of specific state policies to compensate for a reduced federal role in support of higher education access, especially for students in or near poverty.

Introduction

Does the national direct, need-based, student financial grant aid policy of a state have an effect on enrollment patterns at institutions of higher education within that state? National data show relationships between trends in federal direct, need-based, student financial grant aid policy and enrollment patterns over the past 20 years. Policy changes leading to increased aid availability are related positively to overall college participation rates. They also positively impact on college going across student subpopulations segmented by race, gender, and economic status. Policy revisions restricting access to grant aid correlate with declines in these rates.

From 1972 to 1992,[1] states have also developed, implemented, and periodically modified a variety of policies to provide grants and scholarships directly to undergraduate students. Do these state-level policies also have an impact on enrollment patterns at colleges and universities? A review of the higher education literature indicates that little of this type of policy impact analysis has been done.

Finally in a changing national political and economic environment, states increasingly need to be prepared to assume greater responsibility for developing, implementing and refining such policies. Increasingly, the United States Congress has indicated its intent to return greater economic decision-making responsibility to the states, shifting from categorical to block-

grant funding schemes (and at reduced levels (Pitsch, 1995; USA Today, 1995). No current legislation exists to change the Pell or other federal grant aid programs to a block format at this time. It does, however, remain a possibility. And states will need to develop policy schemes to address expected changing levels of federal commitment to direct student aid (Pitsch, 1995).

Background. State educational policy-makers have an explicit interest in understanding the relationship between higher education student financial aid schemes and enrollments. According to Hossler, et al. (1989), policy-makers use aggregate college-going as an index of economic competitiveness and of general quality of life. More concretely, as part of these policies, the 50 states, Puerto Rico, and the District of Columbia[2] have, in aggregate, annually increased their financial commitment to student grants and scholarships (National Association of State Scholarship and Grant Programs (NASSGP), 1993).

In the 1992-93 academic year the states have spent an estimated $1.94 billion in direct awards to undergraduate students in an attempt to stimulate enrollments. This represents an additional $550 million, an increase of 39.6 percent over similar expenditures for 1987-88 (Table 1). Additionally, this

growth has been great enough to increase per person size of award, even as the number of awards has risen (NASSGP, 1993), unlike federally funded Pell grants.

[Insert Table 1 here]

Overall, state direct grants and scholarships represent a small proportion of all such aid distributed. Pell grants, the major federal program, distributed over $6.5 billion to undergraduates in 1993-94 (1995 Appropriations for the Education Department and the National Institutes of Health, 1994, August 17.) Institution-based aid to college students exceeded $6.7 billion in 1989-90 (National Center for Education Statistics (NCES), 1992). On a national basis, the 2 billion dollars in state-administered programs add only an additional 15 percent to these funds. Therefore they may have marginal impact on aggregate enrollment trends.

States, however, show a high degree of variability in all aspects of their direct student aid programs. Areas of differences in 1992-93 include, but are not limited to: eligibility criteria, total dollars allocated and distributed, capitation levels, and percentage of enrolled or potential students benefitting. For example, Pennsylvania determines

eligibility for need-based aid using its own need analysis methodology; West Virginia relies exclusively on the Congressional Methodology[3]. Alaska permits aid dollars to be spent at out-of-state institutions; Washington does not. New York spends a total of $577.1 million; Wyoming, $225 thousand. New York spends an average of $997 per full time equivalent (FTE) undergraduate; Wyoming, $13. Vermont makes awards to 56.2 percent of all undergraduates; Mississippi, 2.4 percent. States also modify all these aspects of their policies across years (NASSGP, 1993).

Given the high degree of interstate student aid policy variability, individual states might experience differences in enrollment trends, even against the background of the overall national pattern. The current higher education literature in general distribution contains little research that provides this comparative information, however, other than the annual NASSGP reports.[4] In this paper I re-examine what can be determined about the impact on enrollment patterns that can be attributed to states' differential policies for direct, need-based, student financial grant aid, including a review of less readily accessible state reports. I then develop recommendations for further research on the effectiveness of state-level to address five questions:

1. Are enrollment patterns among higher education institutions within a state differentially affected by the total financial grant aid dollars spent?

2. Are these enrollment patterns differentially affected by the per capita financial grant aid dollars spent?

3. Are these enrollment patterns differentially affected by the proportion of students' cost of attending covered by aid dollars?

4. Are these enrollment patterns differentially affected by individual student financial grant aid eligibility requirements?

5. Are these enrollment patterns differentially affected by institutional eligibility?

In each case I will assess the overall effect, those for identified subpopulations of students, and those for the separate categories of institutions in both states.

Definition of Terms. Completion of these research activities requires a preliminary step. State higher education student direct financial grant aid policy operates in 50 states and the District of Columbia. A state's system for distributing support may operate independently of other aid programs -- federal and institutional -- or private philanthropy. It may also be linked to one or more of these sources, such as the federally funded State Student Incentive Grant (SSIG) program

(NASSGP, 1993). Across these, common terms vary in their definition. The list that follows identifies the more critical terms and identifies the meanings that they may take:

1. Eligible students. State policies variously define some students as eligible for direct financial aid, and others as not. Student eligibility requirements are those based on personal or family characteristics: e.g., need -- income and financial resources, and non-need -- academic performance, full or part-time status, etc. For example, Arizona makes some funds available only to Native Americans; and it offers tuition/fee waivers only to students at Arizona public institutions (Cowart, 1988).

2. Eligible institutions. Eligibility requirements include type, control, religious affiliation, accreditation status, location (in- or out-of-state), and willingness to comply with governmental conditions for receiving student monies derived from public financial aid sources. Florida policy illustrates how diverse eligibility conditions can be.

Confederate Memorial Scholarships may be used only at in-state public institutions. M. M. Bethune Scholarship Challenge Grants follow students only to Florida traditionally black institutions. Students can receive Critical Teacher Shortage Tuition Reimbursement Program monies by attending most public or

private, in- or out-of-state, two- or four-year institutions. In addition, the 1993 NASSGP analysis another 14 Florida eligibility patterns.

Conversely, some institutions choose to be ineligible. Hiram College claims that it refuses to accept direct or indirect public monies for any purpose (Imprimis, 1994); and Grove City College (Grove City College v. Bell, 1984) has historically refused to sign off on civil rights compliance forms, making it ineligible to receive publicly funded direct student aid of any kind.

3. Enrollment. Universities and colleges use a variety of enumeration methods to report student enrollments. These can reflect either a head-count approach (capitation) or a full-time-equivalency (FTE) calculation (total credit hours charged divided by an institution's standard for full-time enrollment). Criteria for inclusion in these tallies may take into account any of the following: degree-seeking/matriculating versus non-degree status, credit-earning versus auditors, fully admitted versus probationary/provisional status, full-time only, full-time plus part-time, day versus night, residential versus non-residential/commuter, etc.

4. Enrollment pattern. The frequency distribution of enrolled students in a state's system of higher education defines

the enrollment pattern for that state. This can be expressed as a set of enumerations, for each subcategory and for the whole. It can also be reported as a set of proportions, for students out of identified, underlying subpopulations. Both sets of participation indicators may be reported per capita, in FTEs, or both.

5. Financial aid policy. For the purposes of this study, a policy is a formally delineated statement, in law or regulation specifying the process and conditions for awarding monetary assistance for undergraduate education. California (California State Postsecondary Education Commission, 1986) and New York (New York State Education Department, 1989), among others, have such official statements.

6. Grant aid. This includes financial assistance both in the form of tuition, fee, or other costs-of-attendance waivers and in the form direct grants of cash equal to all or some part of the cost-of-attendance. Such aid requires no repayment.

7. Loans. Students may borrow money to underwrite higher education directly or indirectly from a assortment of sources and under a variety of repayment terms. All loan programs share the expectation that the student and/or a legally responsible signatory or co-signatory will make repayment.

8. Need-based aid. Section 411 of the Education

Amendments of 1972 defines the concept of need-based aid. Such funds are intended to remove the financial barrier to access for the most economically disadvantaged. The legislation indicates that his type of aid should provide a student financial grants at a level adequate to meet approximately no more than a legislatively fixed percent of the cost of attending an institution of higher education (COA), to a legislated maximum for an academic year. It also establishes a needs-test mechanism for eligibility, based on a schedule to determine the annual expected financial contribution to COA from the student's family. Eligibility requires that the difference between the legislatively fixed percent of COA and the expected family contribution be greater than zero.

9. State subsidy. States' annual distributions of public funds directly to higher education institutions within their borders have the intent of defraying a percentage of students' tuition and fees charges (Ganderton, 1990; Hauptman, 1991; Leslie & Brinkman, 1988; NASSGP, 1993; Research Associates of Washington, 1993).

10. Student aid. Individually, all states deliver student aid in one or more ways - grants, loans, and other forms - in support of students (NASSGP, 1993). Some use a direct subsidy to qualifying institutions to manage charges to students, such as

the New Jersey Tuition Stabilization Incentive Grant Program (Ganderton, 1990, July; NASSGP, 1993). Others provide institutions with underwriting based on fixed budgetary allocations or full-time-equivalency enrollment formulas (Association of Independent California Colleges and Universities, 1991). Finally, in a number of states, the government provides the funds for attendance directly to eligible students -- the New York Tuition Assistance Program (TAP), for example (Cross, 1987; Keitel, 1991; NASSGP, 1993; New York State Education Department, 1989).

These definitions suggest the degree of variability to be found across states, when examining their individual university and college systems. Therefore, in each instance, I will provide the definition used for these variable terms in each condition I discuss in this study.

Literature Review

Overview. From their beginnings in 1965, states' higher education direct, need-based, student financial grant aid (AID) policies and programs have evolved within a context dominated by federal activity. This has included direct aid distributed through individual campuses (SSIG) and through state agencies (State Supplemental Incentive Grant (SEOG) program), as well as the centrally administered Basic Education Opportunity Grant

(BEOG)/Federal Pell Grant program. Therefore, evaluation of the impact of AID on university and college enrollment patterns requires an understanding of this larger setting within which the state higher education systems distribute AID to students.

I have arrayed the literature reviewed into four sections, to reflect this context. In the first, I explore the forms and foci of state higher education policy analysis. In the second, I make an abridged examination of the background literature on college choice and enrollment patterns. These make clear that AID, among other financial considerations, represents a meaningful factor in the college-going decision. This sample of research supports the assumption that states have an interest in factors that affect enrollment trends. In the third and fourth sections, I discuss studies that examine the impact of states' and federal AID policies on students' enrollment decisions.

State Higher Education Policy Analysis. The literature on the evaluation of states' higher education policies, exclusive of AID, shows variety in both focus and methodology. Looking only at the period since 1991, I have found examples of needs assessments; historical reviews of policy evolution; formative (process) analyses; and several types of outcome assessments. Some of these have academic authors, who write to add to the higher education knowledge base. Some are prepared by

institutional consultants, to provide an external perspective on policies for use by legislatures, executive agencies, quasi-public oversight organizations, and special interest groups. Others come from the staffs of states' legislative and executive bodies. I have selected studies that employ methodologies that I can use for subsequent research.

Floyd (1992) examines the evolution of the policies that have come to determine the governance relationship between the Illinois Board of Higher Education (IBHE) and the four publicly chartered and funded higher education systems within the state from 1960 to 1990. For her case study, she utilizes state legislation and higher education master plans for the period, the institutional responses they generate, and the documented changes that occur in the Illinois system. In narrative form, she analyzes the periodic attempts of the IBHE to reduce the decision making autonomy of the member systems: to establish new campuses, to do program review and planning, to request funds from the state legislature, and to develop budgets.

She emphasizes, that in this large, complex system, the process of developing policy mandates and then implementing the recommendations that emerge are separate, and to some degree, independent activities. The individual subsystems may use their political influence to modify or halt the imposition of new

rules. However, this ability fluctuates over time, especially during periods marked by change in the political or economic environment.

Colorado Senate Bill 92-155 mandates that the state supported institutions of higher education revise existing and develop new policies and programs to enhance students' time-to-degree progress. The statute also requires the Colorado Commission on Higher Education (CCHE) to monitor, to evaluate and to report on the progress made in attaining these objectives (CCHE, 1993); and then to recommend policies for adoption. In the report to the legislature, CCHE staff present both quantitative and qualitative results in three categories.

CCHE has prepared an environmental scan, based on a review of relevant analyses conducted previously by CCHE, by other states' and by national educational associations[5]. This has three foci:

1. What has been the time-to-degree experience in Colorado, in selected other states, and nationally?

2. What has worked to enhance efficient student progress toward degree completion?

3. What has not worked, including unexpected negative effects?

CCHE has also produced the results of a survey of the six

Colorado public higher education systems[6]. This aggregates and summarizes the current and planned policies and activities to respond to the intent of the legislation. Finally CCHE has elaborated a set of recommendations for action incorporating the results of both the literature reviews and the survey.

A majority of the policy studies reviewed take the form of quantitative outcome assessments. The following three look at the effects of state-imposed admissions policies on enrollment trends.

Kowarsky (1994) examines what she describes as a policy paradox for the 1990s: the success of a master plan and specific admissions policies that encourage all Californians to seek a public higher education; and the failure of the state's economy to keep up with the demand for resources this success has created. She questions whether or not California can effectively plan for sufficient higher education capacity in the near future, through the year 2006, utilizing demographic projections alone. She suggests the state also needs to incorporate a factor for changing admissions eligibility rates among California public high school graduates over time. She states that, without this modification, the state's planning will fail to meet the eventual demand for higher education.

To test this assumption, that eligibility rates represent a

variable factor in determining system capacity, Kowarsky compares 1990 admissions eligibility data with that from 1986 for entrance into both the University of California (UC) and California State University (CSU) systems. Admissions officers from both UC and CSU were asked to evaluate the academic transcripts and standardized college entrance examination test score results from 13,641 (approximately six percent) of the California 1990 public high school graduates. The results of this process indicate that eligibility rates among California public high school graduates have improved: 34.6 percent of the 1990 sample meet CSU for admission eligibility rates, improving from 27.5 percent in 1986; for UC, the rate increases to 12.4 percent from 9.1 percent.

Similar to California, Florida faces rising levels of college-going without the state funding for expanded capacity. Pitter and LeMon (1991) and Williams (1992) examine the impact of one strategy of the Florida State University System (SUS) to manage the shortfall between resources and demand, the use of campus and programmatic enrollment caps. Pitter and LeMon (1991) look at the effects of limiting access to specific high-demand programs and majors on minority representation. Using 1990 enrollment data from the nine university-level SUS institutions, they determine that minorities are now under-represented in such limited access programs and majors. They also conclude that as a

tool for managing limited resources, limited access may have consequences at odds with other objectives; however, they provide no data from prior years to support this causal interpretation.

Williams (1992) investigates the impact both of campus and of programmatic access limitations at the University of Florida (UF) for students who started their higher educations at one of the 28 community colleges of the Florida SUS. Utilizing enrollment information for the SUS, she makes three findings:

1. Between 1986 and 1992, the period since the implementation of undergraduate enrollment caps, the percentage of SUS community college students admitted to UF has declined from 13 percent to 10 percent;

2. In 1991, 51.1 percent of the students who started at UF as freshmen (native students) were enrolled in limited access programs, but only 26.9 percent of the SUS community college transfer students;

3. Ninety-five percent of the native students, compared to 86 percent of the SUS community college transfer students, who qualified for admission to UF limited access programs actually gained admission to these. Even though qualified students had been denied entrance into limited access programs, some students who did not meet the minimum requirements were admitted. Among these, native students were admitted at a rate 2.74 times that

for transfers. She concludes that the data suggest a bias in the admissions process to SUS limited access programs that favors native students and penalizes transfers from SUS community colleges.

These examples of analyses of states' higher education policies unrelated to student aid indicate that state-level research can serve varied purposes: historical review (Floyd, 1992), predictive validity determination (Kowarsky, 1994), and retrospective impact evaluation (Pitter and LeMon, 1991; Williams, 1992). They also show the levels of analysis acceptable for the evaluation of public policies. They are largely descriptive: they present narrative summaries, counts, and percentages to support conclusions about system stability in the face of changing policies.

College Choice Factors and Enrollment Patterns. Researchers have employed two different approaches to gain an understanding of enrollment patterns in American postsecondary education. One describes student perceptions of their own college choices; that is, what institutional characteristics carried significant weight in making a choice. The other seeks to determine correlations among student characteristics and the characteristics of the institutions they attend.

For over two decades Alexander Astin, and his associates

(Astin, Korn, & Berz, 1990) have studied the relationship of students' perceptions of institutions in the college choice process as part of his on-going study of the American freshman. For example, the weighted national norms for "Reasons Noted as Very Important in Selecting This College" for all freshmen, fall 1990, for all institutions show, for 16 specified criteria (as percentages of respondents and as ranks):

good academic reputation	51.3	1
graduates get good jobs	42.4	2
size of college	35.0	3
offered financial assistance	25.2	4
graduates go to top grad schools	24.1	5
low tuition	23.4	6
offers special programs	21.7	7
good social reputation	21.2	8
wanted to live near home	19.8	9
friend suggested attending	9.0	10
relative wanted me to come	8.8	11
advice of guidance counselor	7.6	12
religious affiliation of college	5.1	13
recruited by athletic department	5.0	14
advice of teacher	4.1	15
recruited by college rep	4.0	16

(p. 54).

Astin, et al., provide no analysis of these ratings by student socioeconomic status (SES) or by real income. They do, however, compare the response of those attending private compared to public institutions. Students at private colleges and universities rate the availability of financial aid higher than tuition cost in making their enrollment choices. For students at public institutions, low tuition has greater importance than aid availability.

Peng, Fetters, and Kolstad (1981) also look at the criteria the 1980 cohort of high school students use for choosing a college. A sample of 28,240 college-bound high school seniors from the national longitudinal study High School and Beyond rate seven institutional criteria for their importance in making a college choice. Students assign a rating of very important to each in the following proportions:

availability of specific courses or curriculum	.70
reputation of the college in academic areas	.55
availability of financial aid	.38
college expenses	.36
social life at the college	.28
able to live at home	.20
reputation of the college in athletic programs	.12

Peng et al. also look at these ratings as a function of race/ethnicity. They find that this student characteristic has an impact: Blacks, Hispanics, and Native Americans rate the cost factors as most important in their selection of a college compared to white or Asian/Pacific Islander respondents.

Braxton (1990) reaches a conclusion similar to Astin (1990) and Peng (1981). He found that the college choice literature consistently identifies certain fixed institutional characteristics as important to students, especially academic quality, costs, and geographic location; and the fluid one of financial aid. Aggregating the results of the ratings of institutional characteristics across various studies, he places tuition and financial aid the second and third most important considerations of students in selecting a college:

1 special academic programs

2 tuition costs

3 availability of financial aid

4 general academic reputation or quality

5 location or distance from home

6 size of student body

7 social atmosphere.

Braxton also notes that these rankings do vary according to personal characteristics of the students, the range of attendance

options in the region, state policies, and institutional characteristics.

Hossler, Braxton, and Coopersmith (1989) emphasize the complexity of factors determining choice. Consistent with this view, they looked across a range of both student rating and post-enrollment correlational studies in their review of the college choice literature. Repeating the institutional characteristics rankings that appear in Braxton (1990), they also look at the empirical correlates of choice. Their results are summarized in Table 2.

[Insert Table 2 here]

The results they present suggest that there is considerable overlap between those factors students say drive their college choice decisions and those variables that represent observed college choice behavior.

The National Center for Education Statistics (1994) provides more detailed evidence for the nature of the relationship between students' SES and their actual enrollments than do Hossler, et al. (1989). In its longitudinal study, 1989-90 Beginning Postsecondary Students: Two Years Later, NCES provides descriptive data on the interrelationship between students' SES

and institutional selections by level (Table 3).

[Insert Table 3 here]

The data clearly show differing patterns of enrollment decisions across the SES quartiles. As students' SES rises, the proportion attending institutions offering less-than-four-year degrees declines.

Roslyn Korb (1995) indicates that where an institution is located is a major factor in a student's choice of college. Looking at student and institution location by state data for 2,099 million first-time freshmen for fall 1992, she finds that only 350,000 (17 percent) have migrated out-of-state; whereas 83 percent attended in-state. For those attending a less-than-4-year institution, the likelihood of out-migration drops to nine percent.

This pattern varies from state to state. Utah has a low of 6.4 percent out-migration; the District of Columbia a high of 52.9 percent. Seven states, including Washington, D.C., have out-migration rates exceeding 35 percent: Arkansas, Connecticut, Maine, New Hampshire, New Jersey, and Vermont. Ten states, including Utah, lose less than 10 percent of their students to out-of-state institutions: Alabama, Arizona, California,

Michigan, Mississippi, North Carolina, Oklahoma, Texas, and Washington.

The data from these reports show that, at least for the period since the passage of the Education Amendments of 1972, students do make their college choices using a consistent set of variables. However, the prior research does not fully disaggregate the relative impact of each choice factor, nor does it examine specific interactions between factors. Several question about enrollment patterns remain unanswered: do students' SES, aid received, and the source of this aid, have an effect on institutional choice. More specifically, does the availability of AID affect the likelihood of out-migration? Does a relationship exist between students' SES and the level of the institution attended. In the final section, I will review the literature on the effects of state AID to identify the extent to which of these questions have been answered.

States' Policies. States provide the most dollars among all sources that contribute to the support of students in higher education; but few of these are in the form of direct, need-based, student financial grant aid (Hauptman, 1991; National Association of State Scholarship and Grant Programs (NASSGP), 1993). Primarily, these funds are distributed to students indirectly. Rather than disperse a high proportion of aid

dollars to individual attenders, states appropriate most of these funds as annual subsidies directly to the public, and frequently to the private, higher education institutions within their borders (Ganderton, 1990; Hauptman, 1991; Leslie & Brinkman, 1988; NASSGP, 1993; Research Associates of Washington, 1993). These funds work to hold down the average direct cost of attending for students; but they support all students equally, independent of individual ability to pay.

The 50 states, plus Washington, D.C. and Puerto Rico (the states), spent approximately $35 billion dollars in 1989 underwriting the cost of attendance at colleges and universities (Hauptman, 1991). Of this total, the states expended approximately $33.2 billion (94.9 percent) as subsidies; $1.6 billion (4.6 percent) as AID; and $191 million (less than one percent) in the form of non-need-based direct grants (NASSGP, 1993). States distribute this category of direct funding using a variety of criteria, including academic merit and membership in targeted subpopulations (NASSGP).

Little published research focuses specifically on the impact of AID on enrollment patterns at the level of the states. The National Association of State Scholarship and Grant Programs produces an annual survey report of AID for all 50 states. Based on the responses of states' financial aid programs to its annual

survey, the NASSGP report provides detailed information about policies and actual funding levels; but it does not provide evidence of the effect of AID on enrollment. Only six of the states[7] respond to the survey item that specifically address this topic; and the report summaries for these six do not describe a consistent link of AID with enrollment trends (NASSGP, 1993).

Individual states produce reports on the financial operations of their higher education systems. The reports do not necessarily address the impact of aid programs, nor do they provide enough information to permit secondary analyses (Cowart, 1988; Gaylord, 1989; Minnesota Higher Education Coordinating Board, 1989; Texas Higher Education Coordinating Board, 1995).

This absence of systematic studies of the impact of AID on enrollment is consistent with the apparent low priority state higher education officers (SHEEOs) assign to state AID. According to Lenth (1990), in a survey of state higher education priorities:

> Overall [student aid] does not rate particularly high as a state level concern among SHEEOs. A frequent response is that adequacy of student financial aid is an issue primarily because of lagging federal government commitment to these programs. (p. 27)

However, this perceived lag in federal AID, and the accompanying

increase state-level responsibility for such programs, if they are to continue, has not generated an increased interest in studies of the impact of AID.

Even after passage and implementation of the Higher Education Act of 1965, and its subsequent reauthorizations, direct federal involvement in the total financial support of colleges and universities continues to lag behind that of the states. States, in aggregate, directly support higher education with $4.8 billion, compared to $3.5 billion for the (now) U.S. Department of Education in the late 1960s, a ratio of 1.37:1. In 1989 these figures change, respectively, to $35 billion and $21 billion (1.67:1). Despite the increased commitment at the federal level, state assistance has grown 10 percent annually, 3.7 percent in constant dollars. The direct federal contributions has grown only 9.0 percent, 2.2 percent in constant dollars (Hauptman, 1991). At each point, however, institutional subsidies dominate the states' contribution.

The federal government has reversed this fiscal relationship in the taking of responsibility for AID. United States Department of Education (USDOE) dollar grants, to help students pay for increases in their colleges' and universities' COA, escalate from $2.8 billion in 1980 to $6.3 billion in 1990. This change in combined Pell and Supplemental Educational Opportunity

Grants (SEOG) funds represents an increase of 125 percent, unadjusted for inflation, and one of nearly 50 percent in constant 1990 dollars (Hartle, 1991; Mumper, 1993). Need-based grant aid from the states begins this period below the billion dollar mark, increasing only to $1.6 billion by 1990 (NASSGP, 1993); going from a state to federal ratio of 1:2.8 to 1:3.9.

The proportion of published research on AID, therefore, seems consonant with the relative financial investment by the states. Literature does exist; it just lacks the volume of the publications that address federal AID policies and programs. State AID studies can be placed in three categories: (1) reviews of programs for an individual state, (2) studies of the aggregate impact of state AID programs, and (3) examinations of the effects of states' individual programs on specific enrollment patterns.

1. Reviews of Programs for an Individual State. Studies of the New York and California AID programs fall into the first category. These two states annually invest more than $1 billion in higher education (Hines, 1994). They also have produced directly, or have generated a body of publications. Keitel (1991), for example, describes New York State's Liberty Scholarships Program. Designed to assist low-income residents, it guarantees to high school graduates admitted to any college or university within the state financial support sufficient to

attend. "In part, the scholarship program seeks to support the dignity and autonomy of our youth, to ensure that they have access to, and choice of, the highest level of education to which they aspire and are capable of attaining" (p. 122). He describes the goal of the program to be the reduction in the numbers dropping out of high school and the associated societal costs of current drop out rates and an increase in college degree attainment, and the associated fiscal benefits.

Established in 1988, as part of Year of the Child legislation in New York, need-based Liberty scholarships offer students what Keitel (1991) and Foley (U.S. House of Representatives Committee on Education and Labor Subcommittee on Postsecondary Education, 1991) refer to as last dollar support[8] to students who have already obtained Pell and New York Tuition Assistance Program (TAP) grants. This aid can be applied to all normal costs of attending State University of New York (SUNY) or City University of New York (CUNY) systems institutions, including transportation. Students may also use these funds, capped at state institutions' maximum costs, to attend private colleges and universities within the Empire state. Additionally, the program includes funding for early intervention programming, to increase the future numbers of students eligible for collegiate support.

Cross (1987) has evaluated several aspects of the TAP program for the period 1980-1985. For her analyses she has utilized the data base of the New York State Higher Education Services Corporation for full-time degree-enrolled undergraduates. Using this statistical information, she has examined several issues, including the effectiveness of TAP (1) at helping low-income and middle-income students cover tuition costs and (2) in meeting its goal of providing postsecondary educational access, particularly for the lowest-income student. Her results indicate that TAP has met some, but not all of its goals:

1. The proportion of TAP-eligible high school graduates entering college annually increases from .690 to .734 during the period.

2. The proportion of full-time New York college students in TAP compared to the total declines from .502 to .491.

3. TAP has essentially kept up with tuition increases. However, it has been more effective at meeting these costs for students considered, for federal income tax purposes, to be financially dependent on their parents than for those who are legally independent:

TAP status	dependent		independent	
years	1980-81	1984-86	1980-81	1984-86
poorest	46.6%	48.0%	44.8%	28.7%
to $20,000 cutoff	10.0%	25.7%	*	*
all	34.9%	36.7%	35.7%	35.8%

*The data for the "to $20,000 cutoff" for independent students are unreadable in the original.

The New York State Education Department (1989) reports on college costs and student financial aid in the state. New York AID programs have been discussed, as one state's response to the decline in federal spending for higher education student aid (in terms of constant dollars), in testimony given the U.S. House of Representatives Committee on Education and Labor Subcommittee on Postsecondary Education (1991) hearings on the reauthorization of the Higher Education Act of 1965.

The Association of Independent California Colleges and Universities (AICCU)(1991) has developed a report: Toward an Independent Solution: New Student Aid Resources for Independent Colleges. A Report of the Independent Solution Project. The report documents a decline in state financial aid to students attending independent colleges and universities. It attributes the erosion of the state commitment to inflation and budget

competition. AICCU data, for the period 1979-80 to 1989-90, show a shift in the proportion of AID originating from federal, state, and institutional sources for California independent institutions of higher education:

SOURCE	1979-80	1989-90
Institutional	28%	72%
State	38%	19%
federal	34%	9%

AICCU also reports an associated shift in the enrollment pattern for California AID recipients. In 1977, 48 percent of the recipients of Cal Grants (the primary AID program) attended independent institutions; in 1989-90, 29 percent. In a separate report AICCU (Private colleges have room, 1994) links recent excess capacity among member recent to a declining commitment by California to maintain Cal Grants.

The California State Postsecondary Education Commission (CPEC) (1986) describes effects of changes in federal, state, and institutional student financial aid policies, 1973-74 to 1984-85. The CPEC data show that the proportion of federal and California, primarily need-based, aid has declined as a proportion of the total available to California students:

Source	1973-74	1984-85
federal	64.8%	25.5%
state	9.3	9.1
institutional	16.5	21.3
private	9.5	44.1

The data also show the decline in coverage of COA from grant aid, from 65.4 percent in 1973-74 to 45.8 percent in 1984-85.

CPEC (1988) reviews enrollment trends, 1982-1986, for California colleges and universities, with an emphasis on changes at 57 California independent institutions. As part of this study, CPEC looks for a relationship between state aid to students and enrollment. It does report that a 21.3 percent increase in state aid to students, 1984-1987, fails to offset increased college costs; however, the study presents no conclusions.

2. Studies of the Aggregate Impact of State Aid Programs. Lenth (1993) provides capsule descriptions that suggest the variability of AID policies across states. He categorizes states by (a) the policy to coordinate tuition and need-based financial aid policies and (b) the actual implementation of such a policy, where it exists. He describes Illinois, New York Rhode Island, Vermont, and Virginia as large state-funded and centrally-administered AID programs, designed to compensate for tuition

increases with additional student aid dollars. Arizona, North Carolina, Texas, and Washington have state policy guidelines for administering aid; but these leave implementation to the institutions. Florida and Minnesota maintain parallel state/ institution programs. He also reports that many states have systems that are less developed, e.g., Delaware, Kansas, Montana, South Dakota, and Utah.

The annual survey of the National Association of State Scholarship and Grant Programs also provides a range of information on the AID programs of the states that show the degree of variability among states' AID programs. NASSGP (1993) furnishes detailed analyses of states's contribution to the AID pool for the 1988-1993 period. In particular the NASSGP data present evidence that, overall, AID resources show a pattern of covering a decreasing proportion of COA for an increasing proportion of students eligible for AID. The NASSGP annual survey for the period shows that:

1. Only 10 states' AID programs have kept ahead of increases in costs.
2. 16 have experienced a net decline in award dollars and a concomitant net loss of buying power.
3. Eight have growth slow, creating a net loss of buying power.

4. Half of the states expected 1990-1992 overall changes in AID just to keep pace with rising costs of attending.

5. Aggregate reporting of states' AID data can mislead misleading the researcher: e.g., 57 percent of 1993 AID dollars come from 6 states; 80 percent from 14; 94 percent from 26.

Research Associates of Washington (1992) annually profiles states' higher education finance patterns. This includes raw data and descriptive statistics that relate AID to COA for both the states and students.

3. Examinations of the Effects of States' Individual Programs on Specific Enrollment Patterns. Astin & Inouye (1988) examine aspects of the relationship between state-level student grant aid and enrollment trends for private two- and four-year colleges and private universities nationally for the years 1971-1981. Two foci of this study have relevance for the current project: (1) changes in enrollments trends for first-time, full-time (FTFT) and all full time equivalent (FTE) students.; and (2) changes in the characteristics of these students., including an emphasis on family income. They utilize four existing higher education databases overlapping this period: Higher Education General Information Survey (HEGIS) enrollment and general

financial indicators for the 1967-1983 period; Comparative Institutional Research Program (CIRP) student characteristics; NASSGP Annual Survey Report, 1969-1984 need-based grant and scholarship information; and the Education Commission of the States (ECS) publication Higher Education in the States, 1971-1981, for institutional subsidies figures.

They obtain their enrollment change results using a stepwise multiple regression procedure, with the independent variables clustered in four blocks: (1) baseline enrollment, (2) institutional characteristics, including type and selectivity, (3) state characteristics, including size of the higher education system and private sector market share, and (4) state aid program variables, including changes in the per-student subsidy to institutions and in per student financial aid. They identify a statistically significant, positive association between state financial aid dollars per student and overall enrollments in less-selective private colleges. They find a negative association between overall enrollments and an increase in the number of student financial aid awards. (which presumably lowers the dollar amount of an individual award). They also detect significant regressions for enrollments of low and of middle-income students with state financial aid dollars: an increase, respectively, of 0.9 percent and 1.1 percent for each

additional $100 per student.

The California Higher Education Policy Center (CHEPC) (1994) examines the impact of the fee increases on institutional enrollments for California public higher education from 1990-91 to 1993-94. Previously low student fees for the University of California system rise 112 percent; enrollment declines two percent. In the California State University system, these figures are +85 percent and -12 percent, respectively. Similarly, the California Community college system increases fees 260 percent and experiences a nine percent drop in enrollment. Overall CHEPC reports that higher education participation has declined 200,000 since 1990, even though the pool of potential participants has continued to expand. CHEPC attributes this decline to reduced state funding, increased fees, and the use of these fees by the institutions to compensate for state cuts, and their failure to improve either educational quality or aid availability.

Cross's (1987) study of the New York Tuition Assistance Program also falls in this research category. As I have discussed previously, she uses data from the New York State Higher Education Services Corporation on high school graduates' college attendance patterns and on the family incomes of these students to describe the impact of TAP, as a source of AID, on

enrollment in colleges and universities within the state.

These reports offer suggestions for the conduct of further research in two areas. (1) As a group, they indicate that the questions I ask should represent a subset of issues states have attempted to address: the data will be available. (2) The Astin and Inouye (1988) analyses show how multivariate techniques can be used to answer the questions under consideration.

Federal Policy. States provide the most dollars among all sources that contribute to the support of students in higher education; but the federal government holds the lead in direct, need-based, student financial grant aid (Hauptman, 1991; National Association of State Scholarship and Grant Programs (NASSGP), 1993). The extensive body of published federal AID research can be sorted into a number of categories. These include, among others, AID as a public investment in human capital and as a mechanism to ensure racial and gender equity in higher education. For, this study I will focus only on those reports in the literature that explore the relationship between federal AID policy and enrollment patterns among students from different economic classes.

Leslie, Johnson, and Carlson (1977), Jackson (1978), and St. John and Noell (1989) have published studies on the impact of federal student financial aid polices following the passage of

the Higher Education Act of 1965, but prior to the shift in the early 1980s away from grant-based and toward loan-based awards. Leslie et al. (1977) test the assumption that need-based student aid has a positive impact on the college enrollment decision for students approaching high school graduation. They survey 1,047 class of 1974 New York and Pennsylvania high school seniors, close to graduation. Their questionnaire includes items on these students' post-graduation plans, reasons for their decisions (personal and financial, including the availability of financial aid[9]), their academic records, curricula, and high school grade point averages (HSGPA), parental educational attainment, father's occupation, family income level, and family income in dollars. Their results, based on a series of correlational and multiple regression analyses, answer the question "to what extent are [higher education] access and choice served by student aid programs? (p. 280)."

[Insert Table 4 here]

The data show that students perceive aid to be a determinant of the college enrollment decision; and increasingly important as family income declines. They also indicate that, for those planning to pursue higher education, family income affects

choice. Leslie et al. conclude that "to the extent that these data reflect state and national patterns. (p. 285)" [emphasis in the original] student aid policies and funding levels (in the mid-1970s) have succeeded at meeting the objectives of equity in access and in choice for low income persons.

Jackson (1978) confirms the positive impact of aid on the college decision. He explores of the role of financial aid in a general model of high school students' postsecondary enrollment decisions. He draws data elements from several sources. For student information, he uses selected records from the National Longitudinal Survey of the Class of 1972 (NLS-72): those for the 14,848 respondents who have responded to the base year survey, the follow-up surveys (through 1975), test scores, and high school information. From this set he draws a random sample that yields 4,375 usable subjects. He supplements these data with census and HEGIS information. He utilizes a variety of statistical procedures, but derives his conclusions for the impact of financial aid from a multiple regression design: the offer of financial aid has a positive, statistically significant effect on the college decision for students of low SES. Jackson's results must be evaluated cautiously, however.

He draws his sample from a population that has made its college decision before the implementation of the largest federal

grant and loan programs. The data do not differentiate among aid categories. Furthermore, NLS-72 provides information on the college decision only if the respondent actually has submitted at least one application, 2,133 records; therefore, for those who have not applied, Jackson cannot estimate the impact of aid on the decision not to attend for 2,242 respondents[10].

St. John and Noell (1989) utilize a cross-sectional design to evaluate the marginal impact of federal student financial aid on trends in students' enrollment decisions. They base their analyses on National Center for Education Statistics (NCES) national samples of graduating high school seniors: 8,237 respondents to NLS-72 and 7,877 for the High School and Beyond study of the class of 1980 (HSB-80). They also incorporate the responses of 7,578 subjects to the 1982 follow-up to HSB-80, HSB-82. These data bases provide information on students' social background, academic achievement, prior educational experience, and postsecondary plans.

The authors first utilize indicators from these categories to develop a set of control variables in their attempt to measure the effect of student aid on the fourth, treated as the decision to participate in higher education:

1. Social background - ethnicity, gender, mother's education, and family income category;

2. Ability/Achievement - a derived score from standardized tests;

3. High school experience - preparation track and grade point categories;

4. Postsecondary aspirations - highest academic outcome student expects to attain.

5. Geographic region.

They then construct independent variables for aid received by those who have enrolled and the aid offer from the first choice institution for those who have not. They report that they have chosen to utilize dichotomous variables because they found insufficient numbers of responses in several categories[11] of aid packages they might have used.

Their results, generated using logistic regression, support one conclusion central to the present study. Federal student aid has achieved the objective of promoting access to higher education, especially to students from disadvantaged backgrounds; and that this success has extended to minorities in the target segment.

Finally, they address three limiting effects of their design. First, they have found missing data among the elements of the three data bases. Second, aid awards collected from student self-reports and may be inaccurate. Finally, aid

policies have undergone repeated changes in the period between NLS-72 and the two later surveys. In particular, the passage of the Education Amendments of 1972 (P.L.92-318), implementing what has become the Pell Grant program, and the Middle Income Students Assistance Act (P.L.95-566) represent major changes in the purposes and funding levels of federal aid from earlier policies.

Studies focusing on changes in the federal aid program during the 1980s do not reach the same positive judgments as do Leslie et al. (1977), Jackson (1978), and St. John and Noell (1989). Moran (1986) examines the relationship (1) between economic status and college participation by gender and (2) between the changing federal emphasis in student aid policy away from grants and toward loans on enrollment patterns by gender, during the mid-1980s. Basing her findings on data from sources that include USDOE, HSB-80, CIRP, and The College Board, she identifies economic and aid characteristics that differentiate men from women in United States higher education enrollments. She then discusses trends in these participation indicators in relation to the changes observed in federal aid policies.

A woman is more likely than a man to be in poverty. Poverty, in turn differentially reduces the likelihood of a woman participating in higher education immediately after completing high school. For high income high school graduates, Moran cites

immediate postsecondary participation to be 77 percent: 82 percent female, 73 percent male. For those of low economic status, she reports 35 percent total participation: 37 percent female (a 45 percentage point decline) and 32 percent male (a 41 percentage point decline).

For every federal financial aid dollar a man receives, a woman receives 73 cents in grants, 68 cents in college earnings, and 84 cents in guaranteed student loans for low income undergraduates - in part a reflection of the differential impact of eligibility requirements for aid on men and women[12]. As a result, a woman is more likely to have fewer years of higher education than a man. She is more likely to be an adult, part-time, independent, and non-matriculating student. If she attends a low-cost two-year or four-year public college or university, she will discover her gender in the majority; however, if she attends a high cost private institution, she will find women in the minority. Finally, even if she depends no more on loans to fund her college education than does a man, she will find repayment of her loans more difficult: she will more likely enter a lower paying career.

Moran also describes the impact of the mid-1980s changes in federal aid policy on women's enrollment patterns. She observes that the switch in emphasis from grant aid to loans, marked by

lagging average Pell award amounts as a percentage of COA, coincides with a shift in female enrollments from higher to lower cost institutions. During this period, women show a higher rate of participation in the Pell Grant program than men (25.5 percent and 22.8 percent, respectively), but they receive smaller average grants, $880 and $913, respectively. This suggests that they attend lower-cost institutions. Moreover, the participation rate for low income women decreases 13.3 percent compared to an 8.5 percent decrease for men.

St. John (1993) tests the accuracy of several enrollment projection models, including standardized student price-response coefficients. In the process he also develops collateral observations about the impact of changes in student aid policies on low-income student participation in higher education. He utilizes data on tuition, student aid (federal, state, private, and institutional grants and loans), and enrollments from four sources: HEGIS, USDOE, NCES, and a published study of trends in student aid[13].

St. John's results show that Pell Grant dollars per FTE student flowing to the two categories of public higher education institutions have shifted between 1980-81 and 1985-86. During this period, marked by the re-focusing of the emphasis of federal aid policy away from grant-based to loan-based student support,

Pell funds increase $59 (in constant 1985 dollars) at public two-year and $3 at public four-year institutions. At the same time, annual tuition charges, again in constant 1985 dollars, increase: by $174 and $425 respectively. These outcomes, combined with available enrollment data, lead him to conclude that economic considerations (1) have influenced some low-income students out of public four-year institutions and into public two-year ones and (2) have persuaded other low-income students to forego higher education completely.

Mumper (1993, 1996) examines the impact of federal aid as part of his review of the interrelation among changes in family income, college COA, federal and other sources of support to students, and college participation rates for the period 1970-1990. He incorporates data from a range of sources to construct his descriptive, mostly tabular, statistics: American College Testing Program (ACT), The College Board, NASSGP, ECS, NCES, and the U.S. Department of Commerce, Bureau of the Census (Census). Mumper concludes, that during the 1970s, government student aid programs achieve their objective of closing the participation gaps between each of the three lower family income quartiles and the highest. He then notes:

> This was far from a complete success. But it did constitute the type of steady progress against a very difficult problem

> that should have encouraged policy-makers to continue or even expand their efforts.
>
> But that, of course, did not happen....by the early 1990s, the college participation gap between the highest and the lowest income families was greater than it had been in 1970. (Mumper, 1996, p. 208)

He presents tabular data (Mumper, 1996, p. 207), adapted here, to support these conclusions:

[Insert Table 5 here]

In a series of reports produced for ACT, Mortenson (1988, 1989, 1991, 1993) and Mortenson & Wu (1990) examine the impact of an evolving federal student aid policy on students' enrollment patterns in a changing national economy, 1970-1989. Mortenson emphasizes the role of economics in enrollment decisions, especially for those from families below the median income. He develops and supports his conclusions with descriptive statistics, presented in tabular and graphic formats, from a range of sources. These include ACT, Census, Congressional Budget Office (CBO), CIRP, NASSGP, NCES, and USDOE.

Mortenson (1988) shows that programmatic changes to the Pell Grant program also have worked against meeting students' needs.

He documents the decline, 1973-74 through 1987-88, in allowable COA under Pell[14]. At two-year public colleges, for a student living off-campus in 1973-74, Pell allows 80.6 percent of an average COA of $2,852. This leaves the typical student responsible for $553. By 1987-88 these three numbers have changed to 55.6 percent, $7,113, and $3,152 (+570 percent) respectively. At four-year public colleges, he reports the 1973-74 Pell allowable percentage at 96.5%, average COA at $2,519, and student contribution at $88. By 1987-88, the allowable percentage declines to 86.4 percent, allowable COA rises to $6,732, and the average expected student contribution climbs by more than 1000 percent to $917. Mortenson's comparable figures for private four-year colleges show allowable percentage decreasing from 97.7 percent to 92.4 percent, average cost of attending climbing from $4.059 to $12,292, and the average student responsibility again grows by a factor of 10, from $94 to $938 (p. 26).

Mortenson (1993) extends his earlier study (Mortenson, 1988) into the 1990s: tracing the trend of declining purchasing power of the Pell Grant maximum award, the form of federal student aid intended for those without other financial resources for higher education. He documents that, since the inception of the BEOG/Pell Grant program in 1973-74 to 1993-94, the costs for

attending college have out-stripped increases in the maximum grant, eroding the educational purchasing power of these funds for all, including those most needy. He shows that, at the height of their purchasing power in 1975-76, these grants cover almost 80 percent of COA at a public four-year institution and almost 40 percent at a private one for a student who qualify for the maximum allowable award. By 1993-94, these percentages decline to approximately 35 percent and 14 percent, respectively.

Mortenson (1989, 1991) uses CIRP data for 1978 through 1986 to show the changing distribution of impoverished American college freshmen among institutions by type (public or private) and class (two-year college, four-year college, and university). He works from the assumption that type and class are strongly coupled to attendance costs: university costs exceed those for a four-year college, which exceed those for a two-year-college; and a private institution has costs that exceed those for a public one.

He reports four results for this focus of his reviews. (1) The distribution for these students between public and private colleges and universities exhibits little variability, 1978-1986. The change represents a net shift of less than 1.0 percent: from 77.3 percent public and 22.7 percent private to 76.9 percent and 23.1, respectively. (2) The proportion of enrollments by

impoverished freshmen in both types of two-year institutions show an increase of 4 percent for the period, from 40.3 percent in 1978 to 44.3 percent in 1986. The percentage attending public institutions grows from 37.4 percent to 39.7 percent; that attending private two-year colleges, from 2.9 percent to 4.6 percent. (3) The percentage attending a four-year college rises 4.9 percent, from 41.2 percent to 46.1 percent. The distribution of students between institutional types breaks down as an 3.2 percent increase at public colleges, from 26.8 percent to 30.0 percent; and as a 1.7 percent positive change among privates, from 14.4 percent to 16.1 percent. (4) The increased percentages of impoverished students enrolling at two-year and four-year colleges balance the 8.8 percent decline in this measure at universities. In 1978, 18.5 percent of all freshmen from this economic class enroll at universities: 13.1 percent, public; 5.4 percent private. In 1986 these measures drop, respectively, to 9.7 percent, 7.3 percent and 2.4 percent. Mortenson concludes that these changes reflect, at least in part, the failure of federal financial aid programs since the late 1970s to achieve the original objective of equity in access for the economically disadvantaged.

Mortenson and Wu (1990) look at the contribution of family income status, categorized by quartiles, to the observed changes

in overall higher education participation rates, during the 1970-1989 period. They restrict their review of Census statistics to the subpopulation of unmarried, 18 to 24 year old high school graduates. They note that they have made this selection because federal aid distribution policies focus on parents' income.

Mortenson and Wu draw three conclusions from their graphical and tabular review of the available Census data. (1) Across all four income categories, annual college participation rates for this subpopulation have shown no net change across the 20 years: 61.3 percent in 1970, 61.7 percent in 1989. (2) Within this period, it has ranged from 56 percent in 1979 to a high of 63 percent in 1988. (3) The same data analyzed by economic quartile show that those in lowest category, compared to those in the highest, have actually experienced a net loss in representation among those enrolling in college. The gap in participation rates between the two groups begins at 33 percent in 1970, narrows to 23 percent in 1979, and re-establishes itself at a high of 36 percent in 1987. Mortenson and Wu interpret this outcome as one that indicates the failure of the objective of federal higher education policy since 1965, to promote economic equity in higher education access.

The research reviewed provides direction for future study in three areas. (1) As a group, they describe a range of available

sources for national data on enrollment patterns and financial aid for students, institutions, and political entities (states and the nation). They also offer comments on potential problems with these. (2) Leslie et al. (1977), Jackson (1978), St. John (1993) and St. John and Noell (1989) suggest possible research designs and variables that have proved useful in understanding students' enrollment decisions and the role aid plays. (3) They confirm the relevance of the research questions.

Conclusions and Recommendations

The literature indicate that more can be learned about the impact of states' policies for AID. They also suggest an approach to this work.

First the design needs to look at two states, at a minimum, to allow for meaningful comparisons against the background of federal activity. These should be states with large enough investments in higher education to allow the detection of effects of moderate size or less. They should vary on one or more aspects of their direct, need-based, student financial grant aid policies. Using states with relatively distinct policies should, again, enhance the likelihood of detecting differences in the impacts of policies. They should have comparable population bases, systems of higher education, and institutional financial subsidy policies to facilitate statistical analysis.

The states must maintain data on enrollments and Pell Grant dollars by institution. They must maintain demographic, socioeconomic, and state financial grant aid data for the students at these institutions. These data should cover, if possible the years from 1978-79 (cited by Mortenson and Wu (1990) as a reference point for tracking equity in access). They must also allow access to the data.

The analyses should rely on multivariate analyses, especially a form of hierarchical regression. The literature reports that many variables appear to contribute to enrollment and that conditional relationships exist among some of them.

Finally additional areas of the literature need to be reviewed. Ehrenberg and Murphy (1993), Somers (1995), and St. John (1991) indicate that institution-based funds need to be accounted for in studies of enrollment patterns that extend into the 1990s. Nettles (1988) focus on Blacks in higher education suggests that special AID programs targeting minorities require consideration. Cronin (1991), Koff (1991), and Nicklin (1993) do the same for aid from private sources.

Notes

1. From the first availability of Basic Education Opportunity Grants (BEOG/later Pell) under the Higher Education Amendments of 1972 to the 1991 reauthorization of the Higher Education Act.

2. For brevity, the 50 states, plus Puerto Rico and the District of Columbia, are referred to as the a states through out this document.

3. Congressional Methodology (CM) refers to the needs test mechanism to determine students'/student's families' eligibility for federal postsecondary educational financial aid under Title IV of the Higher Education Act of 1965, as subsequently amended. Congress first specifies such a requirement in Public Law 92-318, the Education Amendments of 1972. Congress routinely revises the CM as a part of the periodic reauthorizations of the Higher Education Act. Mortenson (1987, 1988) provides descriptions of the CM and its evolution.

4. A review of the ERIC on-line and CD-ROM data bases yields no references for comprehensive analyses at the level of individual states. The literature falls into several categories. These include: single-state policy analyses (Cowart 1988); the impact of changing states' policies on private colleges and universities (Astin & Inouye, 1988); and multi-state analyses focusing separately on differences in student aid policy and enrollment trends (Minnesota Higher Education Coordinating Board, 1989).

The literature on the experiences of the individual states does suggest that differences in states' higher education policies and enrollment trends do exist. For example, Chen (1993), McCurdy (1994), Trombley (1994), and UC enrollments ... (1994) report significant downward shifts in California enrollments in a single year following changes in state higher education policies, raising the cost of attending.

5. The review includes state reports from Connecticut, Illinois, Missouri, New York, Virginia. It also incorporates reports from the California Higher Education Policy Center and the American Council on Education.

6. State Board for Community Colleges and Occupational Education and Local District Community Colleges; Trustees of the University of Northern Colorado; State Board of Agriculture; Trustees of the Colorado School of Mines; Trustees of State Colleges in Colorado; Regents of the University of Colorado.

7. Alaska, Florida, Illinois, Maryland, Minnesota, and South Carolina (NASSGP, 1993, p. 23, p. 108).

8. According to Keitel (1991) and Cornelius J. Foley, President, New York State Higher Education Services Corporation (U.S. House of Representatives Committee on Education and Labor Subcommittee on Postsecondary Education, 1991), last dollar support refers to financial aid intended to eliminate or at least further close the gap between the student's COA and the total of the student's resources after he or she has exhausted all other sources of support.

9. The authors do not address aid by source (federal, state, private, or institutional) or type (need-base or merit, grants or loans). Other evidence suggests that the aid would likely have been in the form of grants. Mortenson (1988a) reports that the federal shift from loans to grants occurs in the late 1970s; and that for 1975-76 loans represent only 20.7 percent of federal direct student support.

The proportion of all aid available to the subjects of the study that is state-based cannot be estimated from these results, however. For these two states, this may be an important consideration. Hartle (1991) points out that New York has provided aid since 1919; and NASSGP (1980) reports that for 1974-75, New York and Pennsylvania respectively ranked first and second in need-based dollar awards made, representing 38.2 percent of the total $440, 800,000 for all state awards. New York also provides some merit-based awards.

10. Orfield (1992) cites this as a limitation of federal data collection that continues into the 1990s.

11. St. John and Noell (1989) report they had planned to use four aid packages: grant/scholarship only, loan only, work study only, and multi-source.

12. Moran reports that 75 percent of those eligible for public assistance are women - all student aid, including student loans, must be reported as income and amounts are deducted on dollar-for-dollar or prorated basis from benefits.

13. Lewis, G. L. (1989). Trends in student aid: 1962-63 to 1988-89. Research in Higher Education, 30, 547-562.

14. The eligibility of a student for Pell Grant funds, and the amount that the student may receive, are determined by the current financial need Congressional Methodology. Allowable college costs represent one factor in this determination. The expenses include: institutional tuition and fees,; on-campus room and board, or an alternative living allowance; and books, supplies, and miscellaneous.

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Table 1.

Aggregate and Per Capita State AID v. Pell Grants

Academic Years 1987-88 to 1992-93

(in 1,000s)

Academic Year	Pell[b]	AID[a]	Average Pell	Average AID[a]
1986-87	3,910,772	$1,338,000	1,370	
1987-88	4,133,770	1,392,000	1,320	$1,068
1988-89	4,863,000	1,440,000	1,470	1,092
1989-90	4,389,205	1,556,000	1,370	1,161
1990-91	5,274,869	1,675,000	1,556	1,197
1991-92	6,430,000	1,798,000	1,510	1,264
1992-93	6,392,000	1,944,000	1,450	1,290

[a]NASSGP (1993)

[b]OMB

Table 2

Correlates of Choice

var	impact	strength
Student variables		
ability	high-->more selective PEI	strong
parental support	more-->selective/4-yr PEI	strong
SES	more-->selective PEI	strong
ethnicity	blacks less likely to attend	moderate
parental attain	more-->private/elite PEI	moderate
family residence	uncertain HS quality	weak
Nonfinancial institutional variables		
academic quality		strong
location		mod/strong
fin aid availability		moderate
range of PEI options in region		moderate
size		weak
social atmosphere		weak
Financial institutional variables		
net cost		strong
receipt of aid		weak/mod

(p. 275)

Table 3.

Enrollment by Students' SES and Institutional Level

	Institutional Level		
	Less-than-2-year	2-to-3-year	4-year
SES			
Bottom quartile	20.9	62.3	16.8
Middle quartiles	9.6	55.9	34.5
Top quartile	2.9	37.9	59.2

(p.10)

Table 4.

Enrollment Decisions and Ability to Pay

	Income							
	Low		Middle		High		Total	
	n	%	n	%	n	%	n	%
Would Attend Chosen College Without Aid								
Yes	26	57.8	194	67.8	104	78.8	324	67.8
No	19	42.2	92	32.2	28	21.2	139	32.2
Cost the Reason for Not Attending First-Choice College								
Yes	6	12.2	28	9.0	12	7.8	46	8.9
No	43	87.8	284	91.0	142	92.2	469	91.1

Table 5.

Variations in College Participation Rate Differentials Among Unmarried, 18-24 Year-Old High School Graduates for Family Income Quartiles for Selected Years 1970-1992

Year	Lowest to Highest	Second to Highest	Third to Highest
1970	-33%	23%	-15%
1975	-29	-22	-12
1980	-27	-15	-5
1985	-35	-23	-9
1990	-34	-22	-11
1992	-34	-22	-11